

**RELIABILITY TEST PROCEDURES FOR ECX-1637BQ Series**



| <b>NO.</b> | <b>TEST NAME</b>                         | <b>TEST PROCEDURES</b>   | <b>REQUIREMENTS</b>                                       |
|------------|--|--|---|
| 1          | <b>Drop Test</b>                         | Fall Height: 150cm, Weight: 50g on concrete plane.<br>Fall Times: 10 times.  | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 2          | <b>Mechanical Shock</b>                  | Half-Sine wave with 0.3ms 3000G X, Y, Z each direction<br>1 time.  | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 3          | <b>Vibration</b>                         | Vibration Frequency: 10 to 55Hz Amplitude, 1.5mm,<br>Frequency: 55~2000Hz Peak value, 20G<br>Direction: X.Y.Z axis.<br>Time: 4 hours in each direction     | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 4          | <b>Storage in High Temperature</b>       | +125°C for 1000 hours.   | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 5          | <b>Storage in Low Temperature</b>        | -40°C for 1000 hours.  | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 6          | <b>Resistance to Solder Heat</b>         | The lead is immersed in a 260°C ±5°C solder bath<br>within 10 ±1 seconds   | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 7          | <b>Humidity</b>                          | 1000 hours, 85°C and 85% humidity (in use)   | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 8          | <b>Thermal Shock</b>                     | -55/125°C 300 cycles, transfer time 20 seconds, dwell<br>time 5 minutes.   | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 9          | <b>Temperature Cycle</b>                 | 1000 Cycles (-40 ~ +125°C)   | Frequency Drift ±5 PPM Max.<br>Resistance Drift ±15% Max. |
| 10         | <b>Leakage</b>                           | Gross leak (Air leak test), Fine leak (Helium leak test)<br>He-pressure: 6kgf/cm <sup>2</sup> 2 hours.   | There are no visual abnormalities.                        |
| 11         | <b>Board Flex</b>                        | Shall be pressurized at a speed of approx. 0.5mm/sec in<br>the direction indicated by the arrow until the bending<br>width reaches 2mm and held for 5 sec. | There are no visual abnormalities.                        |
| 12         | <b>Terminal Strength</b>                 | Force 60s at 1, 8kg  | There are no visual abnormalities.                        |
| 13         | <b>Resistance to Solvents</b>            | With IPA to scrub the surface of the subject with brush<br>10 times.   | There are no visual abnormalities.                        |
| 14         | <b>Mean Time Between Failures (MTBF)</b> | $MTBF (25^{\circ}C) = \frac{E_a \times (1/T_1 - 1/T_2) / K}{\pi}$  | 16396600 Hours  |